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EXAMINER
WEBB, CHRISTOPHER G

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)	
	10/605,025	BARTONEK, MARK	
	Examiner	Art Unit	
	Christopher G. Webb	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22 and 28-34* is/are rejected.

7)☒ Claim(s) *23-27 and 35-38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/28/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20031128*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 12 objected to because of the following informalities: The claim is terminated with dual punctuation marks. Appropriate correction is required.

Claim Objections

Claim 38 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation present in claim 38 is already contained within claim 1.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 23 describes a step in which the radiant energy source emits a desired radiant

energy delta. However, it is understood in light of the specification that the energy delta is a difference in values, and therefore it is not enabled that a radiant energy source could emit a difference in values. Furthermore, it is suggested that 'during the first period of time' be moved to a place between 'the radiant energy source' and 'to emit...' to enhance the clarity of the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 29-30 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Utterback et al. (US 5,149,025, hereafter Utterback).

As to claim 29, Utterback discloses an apparatus for calibrating a railway infrared hot box detector comprising: a radiant energy source (fig. 1, element 74) adapted to be positioned adjacent to the hot box detector (fig. 1, element 14) being calibrated for emitting radiant energy along a path toward the hot box detector (col. 11, lines 60-62); the radiant energy source having two different energy levels for calibration (col. 23, lines 12-14); and a processor (fig. 1, element 24) for controlling the operation of the radiant energy source so as to generate a desired radiant energy delta between the two energy levels (col. 23, lines 4-6). It is understood that by having separate calibration values

that the temperature produced by one is inherently higher than the temperature produced by the other, thus describing two modes of operation.

As to claim 30, Utterback discloses that the radiant source is solid state (col. 11, line 60). The specific source disclosed by Utterback is an infrared LED, which is well known to utilize electrical power for heating.

As to claim 33, Utterback discloses a radiant energy source driver board (fig. 1, element 76) that communicates with the processor to provide the appropriate level of power to the radiant energy source (col. 23, lines 5-6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-6, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utterback in view of Michailicenko et al. (DE 19501110A1, hereafter Michailicenko).

With respect to claim 1 and 38, Utterback discloses an apparatus for calibrating a railway infrared hot box detector comprising: a radiant energy source (fig. 1, element 74) adapted to be positioned adjacent to the hot box detector (fig. 1, element 14) being calibrated for emitting radiant energy along a path toward the hot box detector (col. 11, lines 60-62); a lens (fig. 1, element 12); and a processor (fig. 1, element 24) for

operating the energy source to achieve the desired radiant energy delta. Utterback does not teach that the lens is placed between the hot box detector and the radiant source. Michailicenko teaches a calibrated heat source in which the lens is placed between the HBD and the radiant source. It would have been obvious at the time of invention to one of ordinary skill in the art to use the lens placement taught by Michailicenko in the apparatus of Utterback. Placing the lens between the source and HBD would allow for a more accurate calibration routine, as any effects introduced into the system by the lens would be included in the calibration.

As to claim 2, Utterback discloses that the radiant energy source is solid-state (col. 11, line 60) and it is pulsed between two known different energy levels (col. 12, lines 1-2). It would have been obvious at the time of invention to one of ordinary skill in the art to choose the on state and off state as the two known energy levels. By using the on state and off state as the two energy levels, the calibration would be delivering an energy delta between the ambient temperature and a peak temperature, which is the desired energy delta.

As to claim 3, Utterback discloses a temperature sensor (fig. 1, element 70) for signaling the internal temperature of the apparatus to the processor (col. 12, lines 31-33). Utterback does not disclose that the internal temperature measurements correlate to the temperature of the radiant source. It would have been obvious at the time of invention to one of ordinary skill in the art to correlate the internal temperature to the temperature of the radiant source. From a comparison of the applicant's elements 300, the radiant source, and 308, the temperature sensor, both in fig. 3 to elements 70 and

74 in fig. 1 of Utterback, it is apparent that the temperatures being measured with respect to the radiant source and the rest of the system would be equivalent.

As to claim 5, Utterback discloses a radiant energy source driver board (fig. 1, element 76) that communicates with the processor to provide the appropriate level of power to the radiant energy source (col. 23, lines 5-6).

As to claim 6, Utterback discloses that while the energy delta is increasing from a reference value to a peak value and while the energy delta is decreasing again to its reference value, the processor is in a feedback loop (fig. 13) with the radiant energy source and the hot box detection means. Utterback does not disclose communication between a processor in the calibration apparatus and a processor in the hot box detector. It would have been obvious at the time of invention to one of ordinary skill in the art to alter the design of Utterback by separating the calibration system from the HBD system and communicate by passing electrical pulses between the processor and the HBD. By separating the systems, the calibrated heat source could be installed with existing HBDs, without needing to replace the entire unit.

With respect to claim 16, Utterback discloses a lens in his apparatus. Utterback does not place the lens between the radiant energy source and the HBD. Michailicenko teaches a calibrated heat source in which the lens is placed between the HBD and the radiant source. It would have been obvious at the time of invention to one of ordinary skill in the art to combine the lens placement of Michailicenko with the apparatus of Utterback as noted above with respect to claim 1.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Utterback in view of Michailicenko as applied to claim 1 above, and further in view of Muthu et al. (US 2003/0230991 A1, hereafter Muthu).

With respect to claim 4, Utterback in view of Michailicenko does not disclose that the radiant energy source is mounted upon a heat sink and that the apparatus further comprises a temperature sensor for signaling the temperature of the heat sink to the processor. Muthu teaches a combination of a heat sink (fig. 1, element 190) with a radiant energy source (fig. 1, element 150) and a temperature sensor (fig. 1, element 250) connected to a processor (fig. 1, element 180). It would have been obvious at the time of invention to one of ordinary skill in the art to replace the simple radiant source disclosed by Utterback in view of Michailicenko with the combination taught by Muthu. The use of the combination taught by Muthu would be advantageous because it would prevent overheating of the radiant energy source as well as provide a sensor for the source's heat contribution to the system. Additionally, many solid-state radiant energy sources have temperature dependent output, and the combination taught by Muthu would provide a way to ensure proper source functionality.

Claims 7-9 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utterback in view of Fisher et al. (US 2002/0033989 A1, hereafter Fisher).

With respect to claim 7, Utterback discloses an apparatus for calibrating a hot box detector comprising: a solid state radiant energy source (fig. 1, element 74) for emitting radiant energy along a path toward the hot box detector (col. 11, lines 60-62)

adapted to be positioned adjacent to the hot box detector (fig. 1, element 14) being calibrated; a shutter device positioned between to source of radiant energy and the hot box detector along the path (fig. 1, element 50), with a first mode operation (col. 9, lines 22-23) in which the shutter device permits radiant energy to be transmitted from a source to the hot box detector (fig. 1, element 14) along the path, and a second mode of operation (col. 9, lines 20-21) in which the shutter blocks the transmission of radiant energy from the source to the detector; and a processor (fig. 1, element 24) for operating the energy source at a desired temperature set point (col. 23, lines 4-5). However, Utterback does not disclose that the source referenced above is the calibration source. Instead, for calibration, Utterback uses a pulsed source, as noted above with respect to claim 2. Fisher teaches that a pulsed source may be replaced with a combination of a source with a light chopper (paragraph [0026], lines 11-20). It would have been obvious at the time of invention to one of ordinary skill in the art to use the shutter that is already in place in the apparatus of Utterback in combination with the calibration source in the manner described by Fisher. By using the shutter during calibration, a more accurate energy delta will be produced for calibration because it will take into account the heat produced by the shutter.

As to claim 8, Utterback discloses a temperature sensor (fig. 1, element 14) for sensing a temperature of the shutter (col. 9, lines 48-50) and communicating the sensed temperature to the processor (col. 10, lines 54-58), the processor using the sensed temperature to calculate the desired set point (col. 9, lines 37-40).

As to claim 9, Utterback discloses a temperature sensor (fig. 1, element 70) for signaling the internal temperature of the apparatus to the processor (col. 12, lines 31-33). Utterback does not disclose that the internal temperature measurements correlate to the temperature of the radiant source. It would have been obvious at the time of invention to one of ordinary skill in the art to correlate the internal temperature to the temperature of the radiant source. From a comparison of the applicant's elements 300, the radiant source, and 308, the temperature sensor, both in fig. 3 to elements 70 and 74 in fig. 1 of Utterback, it is apparent that the temperatures being measured with respect to the radiant source and the rest of the system would be equivalent.

As to claim 12, Utterback discloses a heat shield (fig. 4, element 110) defining an aperture (the inner radius of element 110, taken at a vertical cross-section between elements 74 and 14) mounted along the path and radiant energy transmitted directly from the source (fig. 4, element 74) to the HBD (fig. 4, element 14) via the aperture of the heat shield and the shutter device when in it's first mode of operation (which inherently passes radiant energy through the shutter device, as defined by claim 7).

As to claim 13, Utterback discloses that while the energy delta is increasing from a reference value to a peak value and while the energy delta is decreasing again to its reference value, the processor is in a feedback loop (fig. 13) with the radiant energy source and the hot box detection means. Utterback does not disclose communication between a processor in the calibration apparatus and a processor in the hot box detector. It would have been obvious at the time of invention to one of ordinary skill in the art to alter the design of Utterback by separating the calibration system from the

HBD system and communicate by passing electrical pulses between the processor and the HBD. By separating the systems, the calibrated heat source could be installed with existing HBDs, without needing to replace the entire unit.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utterback in view of Fisher as applied to claim 7 above, and further in view of Lange et al. (US 2002/0178782 A1, hereafter Lange).

With respect to claim 10, Utterback discloses a shutter device having an aperture therein (fig. 1, element 50) and comprises a motor for rotating the shutter (fig. 1, element 51). Utterback does not disclose that the device is a wheel. Lange teaches a wheel with an aperture, also connected to a motor (paragraph [0029], lines 7-10). It would have been obvious at the time of invention to one of ordinary skill in the art to replace the shutter of Utterback with the wheel of Lange. It is a matter of design choice to use a wheel as opposed to the shutter described by Utterback; the two device components perform the equivalent function of modulating a radiant energy source by blocking and passing radiant energy.

As to claim 11, Utterback discloses that the motor is controlled by the processor (fig. 1, element 55).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Utterback in view of Fisher as applied to claim 7 above, and further in view of Michailicenko.

With respect to claim 14, Utterback discloses a lens in his apparatus. Utterback does not place the lens between the radiant energy source and the HBD. Michailicenko teaches a calibrated heat source in which the lens is placed between the HBD and the radiant source. It would have been obvious at the time of invention to one of ordinary skill in the art to combine the lens placement of Michailicenko with the apparatus of Utterback as noted above with respect to claim 1.

Claims 15, 17, 19-22, 28, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utterback.

With respect to claim 15, Utterback discloses an apparatus for calibrating a railway HBD comprising: a radiant energy source (fig. 1, element 74) adapted to be positioned adjacent to the HBD being calibrated (fig. 1, element 14) for emitting radiant energy along a path toward the hot box detector; and a processor (fig. 1, element 24) to cycle the solid state radiant energy source at a desired frequency and intensity between two known different energy levels (col. 12, lines 1-2). It would have been obvious at the time of invention to one of ordinary skill in the art to choose the on state and off state as the two known energy levels. By using the on state and off state as the two energy levels, the calibration would be delivering an energy delta between the ambient temperature and a peak temperature, which is the desired energy delta.

As to claim 17, Utterback discloses a temperature sensor (fig. 1, element 70) for signaling the internal temperature of the apparatus to the processor (col. 12, lines 31-33). Utterback does not disclose that the internal temperature measurements correlate

to the temperature of the radiant source. It would have been obvious at the time of invention to one of ordinary skill in the art to correlate the internal temperature to the temperature of the radiant source as noted above with respect to claim 3.

As to claim 19, Utterback discloses a radiant energy source driver board (fig. 1, element 76) that communicates with the processor to provide the appropriate level of power to the radiant energy source (col. 23, lines 5-6).

As to claim 20, Utterback discloses that while the energy delta is increasing from a reference value to a peak value and while the energy delta is decreasing again to its reference value, the processor is in a feedback loop (fig. 13) with the radiant energy source and the hot box detection means. Utterback does not disclose communication between a processor in the calibration apparatus and a processor in the hot box detector. It would have been obvious at the time of invention to one of ordinary skill in the art to alter the design of Utterback by separating the calibration system from the HBD system and communicate by passing electrical pulses between the processor and the HBD. By separating the systems, the calibrated heat source could be installed with existing HBDs, without needing to replace the entire unit.

As to claim 21, Utterback discloses that the radiant energy source is solid-state (col. 11, line 60).

As to claim 22, Utterback discloses a method of calibrating a railway infrared HBD by delivering a controlled radiant energy delta comprising: transmitting radiant energy from a source at two different values (col. 23, lines 12-14). Utterback discloses neither the associated temperatures while the different values are being transmitted, nor

the associated control mechanism. However, it would have been obvious at the time of invention to one of ordinary skill in the art that by transmitting two different energy levels, there is an inherent difference in the temperature. Furthermore, it would be obvious to control the operation of the radiant energy source to deliver radiant energy at a level in excess of the level of energy transmitted during the second time period. By delivering energy at a level in excess of the level during the second period of time, the correct energy delta for HBD calibration would be created.

As to claim 28, Utterback discloses that while the energy delta is increasing from a reference value to a peak value and while the energy delta is decreasing again to its reference value, the processor is in a feedback loop (fig. 13) with the radiant energy source and the hot box detection means. Utterback does not disclose communication between a processor in the calibration apparatus and a processor in the hot box detector. It would have been obvious at the time of invention to one of ordinary skill in the art to alter the design of Utterback by separating the calibration system from the HBD system and communicate by passing electrical pulses between the processor and the HBD. By separating the systems, the calibrated heat source could be installed with existing HBDs, without needing to replace the entire unit.

As to claim 31, Utterback discloses a temperature sensor for generating data indicative of the temperature of the radiant source as noted above with respect to claim 3.

As to claim 34, Utterback discloses that while the energy delta is increasing from a reference value to a peak value and while the energy delta is decreasing again to its

reference value, the processor is in a feedback loop (fig. 13) with the radiant energy source and the hot box detection means. Utterback does not disclose communication between a processor in the calibration apparatus and a processor in the hot box detector. It would have been obvious at the time of invention to one of ordinary skill in the art to alter the design of Utterback by separating the calibration system from the HBD system and communicate by passing electrical pulses between the processor and the HBD. By separating the systems, the calibrated heat source could be installed with existing HBDs, without needing to replace the entire unit.

Claims 18 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utterback as applied to claims 15 and 29, respectively, and further in view of Muthu.

With respect to claim 18, Utterback does not disclose that the radiant energy source is mounted upon a heat sink and that the apparatus further comprises a temperature sensor for signaling the temperature of the heat sink to the processor. Muthu teaches a combination of a heat sink (fig. 1, element 190) with a radiant energy source (fig. 1, element 150) and a temperature sensor (fig. 1, element 250) connected to a processor (fig. 1, element 180). It would have been obvious at the time of invention to one of ordinary skill in the art to replace the simple radiant source disclosed by Utterback with the combination taught by Muthu as noted above with respect to claim 4.

As to claim 32, Utterback does not disclose that the radiant energy source is mounted upon a heat sink and that the apparatus further comprises a temperature

sensor for signaling the temperature of the heat sink to the processor. Muthu teaches a combination of a heat sink (fig. 1, element 190) with a radiant energy source (fig. 1, element 150) and a temperature sensor (fig. 1, element 250) connected to a processor (fig. 1, element 180). It would have been obvious at the time of invention to one of ordinary skill in the art to replace the simple radiant source disclosed by Utterback with the combination taught by Muthu as noted above with respect to claim 4.

Allowable Subject Matter

Claims 23-27 and 35-37 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The particular methods of controlling the radiant energy source as described in claims 23-27 were not found in prior art. Similarly, the mechanisms of control described in claims 35-37 were not found in prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher G. Webb whose telephone number is (571) 272-8449. The examiner can normally be reached on 9AM - 5:30PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CGW

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